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THE PLANETARY DATA SYSTEM EDUCATIONAL CD-ROM; E. A. Guinness and R. E. Arvidson, Dept. of Earth and Planetary Sci., McDonnell Center for the Space Sci., Washington University, St. Louis, MO 63130; M. Martin and S. Dueck, Jet Propulsion Laboratory, 4800 Oak Grove Dr., Pasadena, CA, 91109.

The Planetary Data System (PDS) is producing a special educational CD-ROM that contains samples of PDS datasets and is expected to be released in 1993. The CD-ROM will provide university-level instructors with PDS-compatible materials and information that can be used to construct student problem sets using real datasets. The main purposes of the CD-ROM are to facilitate wide use of planetary data and to introduce a large community to the PDS. To meet these objectives the Educational CD-ROM will also contain software to manipulate the data, background discussions about scientific questions that can be addressed with the data, and a suite of exercises that illustrate analysis techniques. Students will also be introduced to the SPICE concept, which is a new way of maintaining geometry and instrument information. The exercises will be presented at the freshman through graduate student levels. With simplification, some of the material should also be of use at the high school level.

The nine datasets to be included on the Educational CD-ROM are listed in Table 1, along with the individuals who are producing the datasets, documentation, and exercises. The Planetary Image dataset consists of approximately 200 of the best color and black and white images from the U.S. planetary exploration program and captions for each image. The comet dataset includes spectra of sublimating gases from comet Halley, with exercises focussed on determining the production rate of water at different points in the comet's orbit. The meteorite and asteroid dataset consists of several multispectral datasets with an exercise to identify the signature of specific minerals. The Titania dataset consists of radiometrically calibrated Voyager images acquired at different geometries. The exercise associated with the Titania dataset explores the moon's bi-directional reflectance function in terms of the composition and texture of the surface. The Viking Orbiter Infrared Thermal Mapper dataset includes temperature, thermal inertia, and elevation maps of Valles Marineris with an exercise dealing with the control of temperature variations. The Viking Lander dataset contains Viking Lander 2 color images and temperature and pressure measurements acquired over the course of two Mars years. The exercise associated with this dataset explores visual and meteorological observations of frost at the Viking 2 site. The Viking Orbiter gravity and topography dataset includes gravity, topography, and image data over Olympus Mons with an exercise to test models explaining the gravity observations. The Apollo 17 dataset includes chemical analyses of Apollo 17 soils and possible endmember materials. The exercise will involve using mixing models to explain the composition of the soils. Finally, the Magellan dataset consists of synthetic aperture radar, elevation, and emissivity data over Sapas Mons and Maat Mons. The purpose of the exercise is to explore how terrain type, relative age, and elevation control microwave properties.

The information on the CD-ROM is organized by directories, of which there is one for each dataset, documentation, indices, and software. The documentation directory contains a text file, VOLINFO.TXT, which includes background discussions of the datasets and descriptions of the exercises and software. Students can access the datasets and exercises through this directory structure using several popular operating systems,

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including DOS, VAX/VMS, Unix, and MacOS. An alternate access capability is the Journey to the Planets program included on the CD-ROM, which will run on Macintosh and PC computers (Windows 3.1) with a 256 color display. The program will allow users to browse through the images or display them as a slide show. Image captions and descriptions of the planets, missions, and spacecraft are also included as well as descriptions of the exercises on the CD-ROM.

The PDS Educational CD-ROM is dedicated to Dr. William Quaide, former chief scientist, Office of Solar System Exploration, NASA Headquarters. Before his retirement in 1992, Dr. Quaide was instrumental in launching the Planetary Data System. Further, he has influenced in very positive ways each of the missions or projects that produced data included on this CD-ROM. With Dr. Quaide's strong interest in education, it is entirely appropriate that publication and dissemination of the Educational CD-ROM be done in honor of his many contributions to the planetary sciences.

TABLE 1

Dataset	Lead Persons	Institution
Planetary Images	M. Martin, S. Dueck	Jet Propulsion Laboratory
Comet Spectra	M. A'Hearn, E. Grayzeck	U. of Maryland
Meteorite and asteroid spectra	C. Pieters	Brown U.
Photometry of Titania from Voyager images	B. Brackett C. Acton	Washington U. Jet Propulsion Laboratory
Viking Orbiter Infrared Thermal Mapper data	T. Martin	Jet Propulsion Laboratory
Viking Lander image and meteorology data	E. Guinness, R. Becker S. Lee	Washington U. U. of Colorado
Viking Orbiter gravity and topography data	R. Phillips	Washington U.
Chemical data for Apollo 17 samples	R. Korotev	Washington U.
Magellan SAR, elevation, and emissivity data	R. Arvidson, N. Izenberg	Washington U.